

NOVEMBER/DECEMBER 2025

**23UCA51/23UCS51 — OPERATING
SYSTEMS**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.



1. What is an Operating System?
2. What is an alternative to interrupts and why is it rarely used?
3. What is critical section?
4. Why must a thread wait for a resource outside a monitor?
5. What is called the hold-and-wait condition?
6. Define deadlock.
7. Mention the role of priorities in scheduling.
8. Differentiate between preemptive and nonpreemptive scheduling.

9. What is meant by Overlays?
10. Compare the Contiguous versus Non Contiguous Memory Allocation.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Illustrate the Life Cycle of a Process.
Or
(b) Briefly discuss on the Interrupt Classes.
12. (a) Summarize on the Mutual Exclusion Primitives and its implementation.
Or
(b) Write short notes on Peterson's Algorithm.
13. (a) Explicate the four necessary conditions for deadlock to exist.
Or
(b) How systems can prevent deadlocks? Explain it.
14. (a) Classify three Levels of Scheduling.
Or
(b) Enumerate the objectives of Scheduling.

15. (a) Write an overview about Memory Management.

Or

- (b) Briefly discuss on the concept of Demand Paging.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss on distributed computing and parallel computation.
17. Examine the significance of Semaphores.
18. Explicate the notions of deadlock, avoidance, detection and recovery.
19. Explain any five Scheduling Algorithms with suitable example.
20. Describe about the Variable-Partition Multiprogramming Technique.